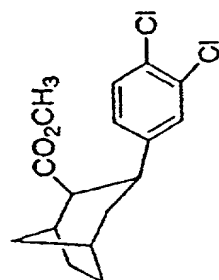
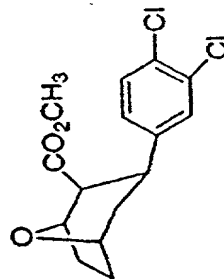


Cocaine

WIN 35,428



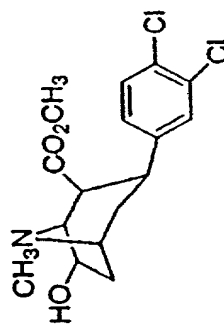
2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-
bicyclo[3.2.1]octane



2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-
8-oxabicyclo[3.2.1]octane

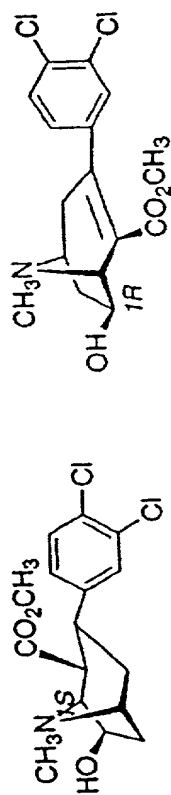


2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-
6β-hydroxy-8-methyl-8-azabicyclo[3.2.1]octane

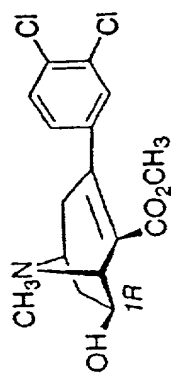


2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-
7β-hydroxy-8-methyl-8-azabicyclo[3.2.1]octane

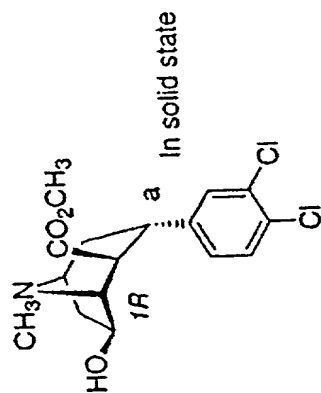
Figure 1. Structures of Lead Bicyclo[3.2.1]octanes



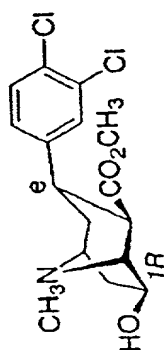
(1S)-18a



(1R)-8a



(1R)-18a

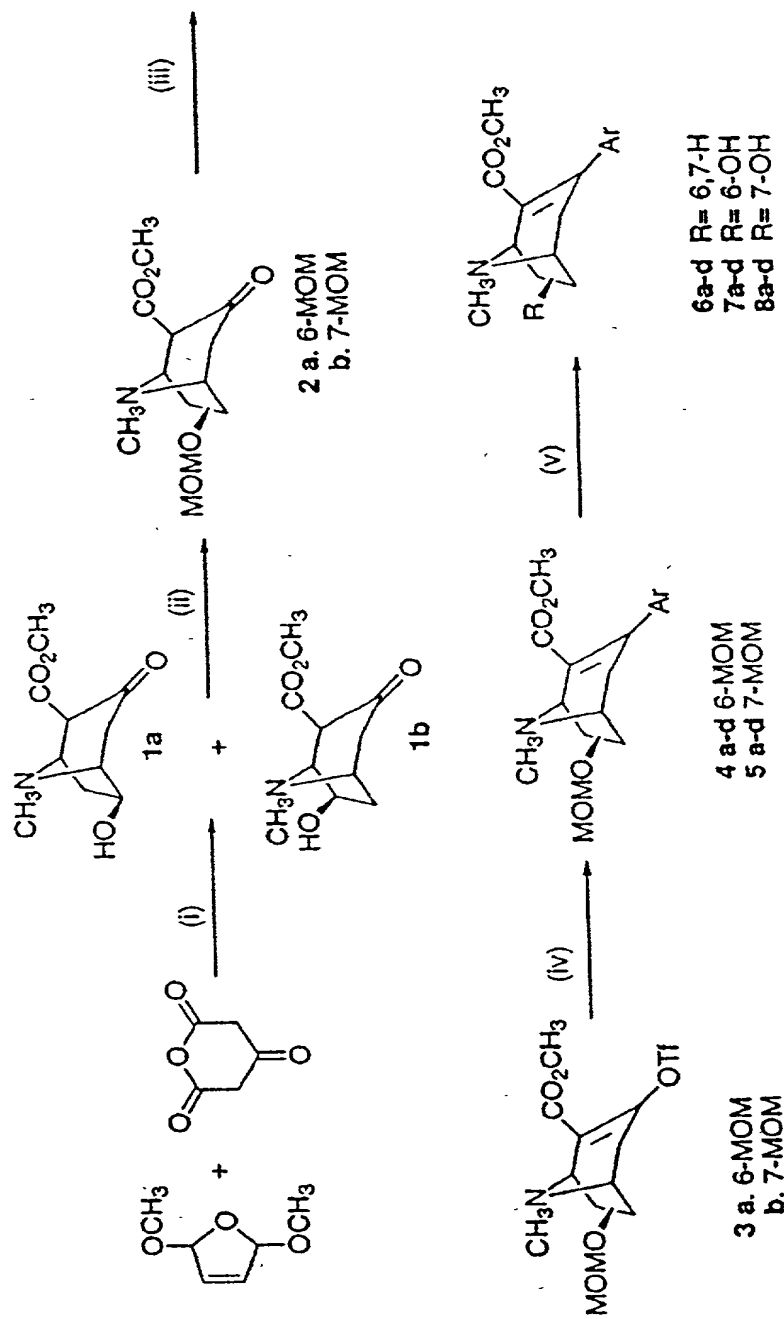


(1R)-8a

Figure 2. Absolute Configurations of (1R)-8a, (1R)-18a, (1S)-18a

Figure 3

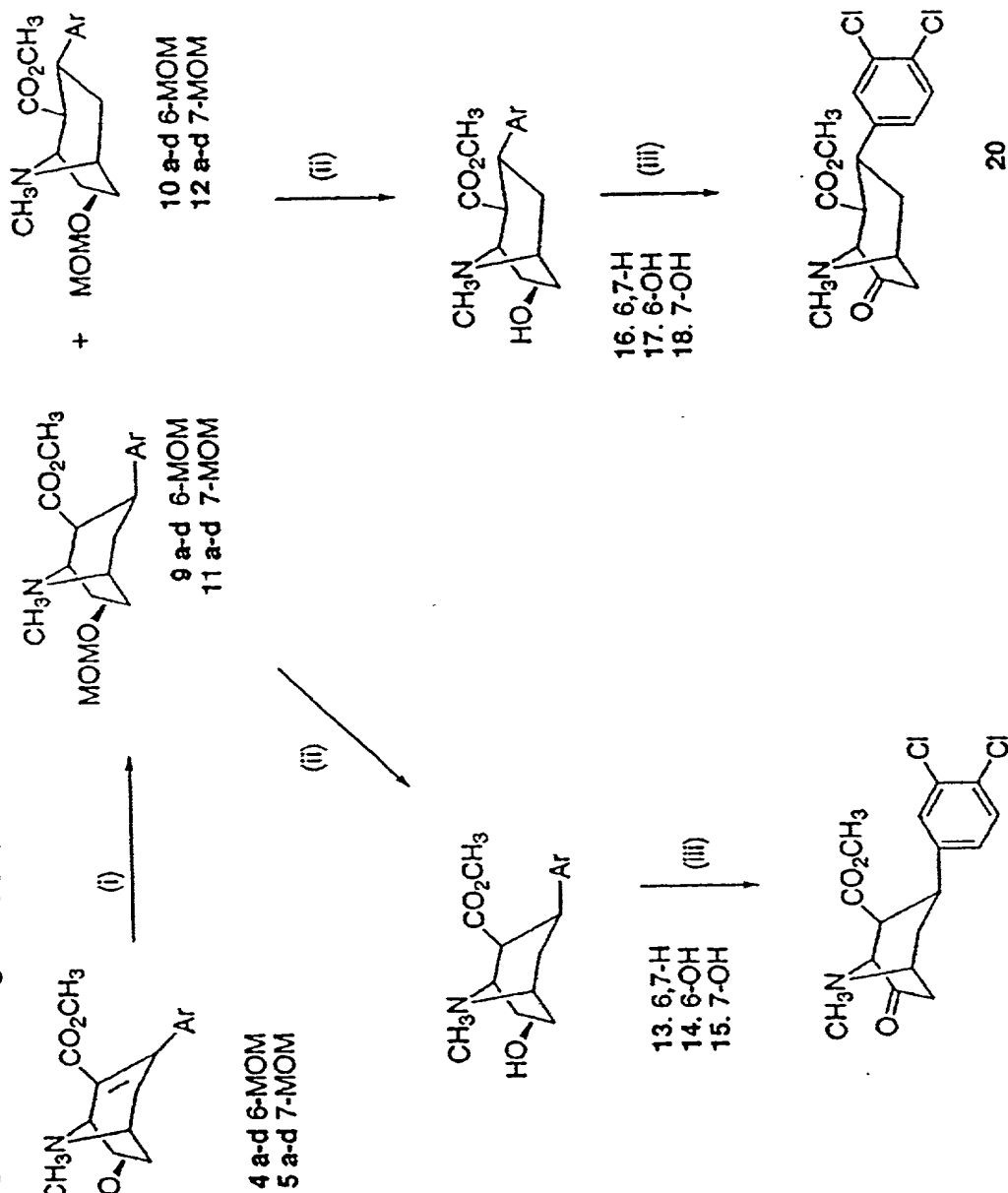
Scheme 1. Synthetic Route to 2,3-Unsaturated Tropanes^a



^a Reagents: (i) H_2NCH_3 ; (ii) $\text{CH}_2(\text{OCH}_3)_2$, pTSA; (iii) $\text{NaN}(\text{TMS})_2$, PhNTf_2 ; (iv) $\text{Pd}_2(\text{dba})_3$, $\text{ArB}(\text{OH})_2$; (v) TMSBr .

Figure 4

Scheme 2. Synthetic Route to Bridge Oxygenated Tropanes^a



19

20

^a Reagents: (i) SmI_2 ; (ii) TMSBr , CH_2Cl_2 ; (iii) $N\text{-CH}_3\text{-morpholine-}N\text{-oxide}$, tetra-*n*-propylammoniumperruthenate.

Scheme 3. Synthetic Route to Bridge Oxygenated 2-Keto Tropanes^a

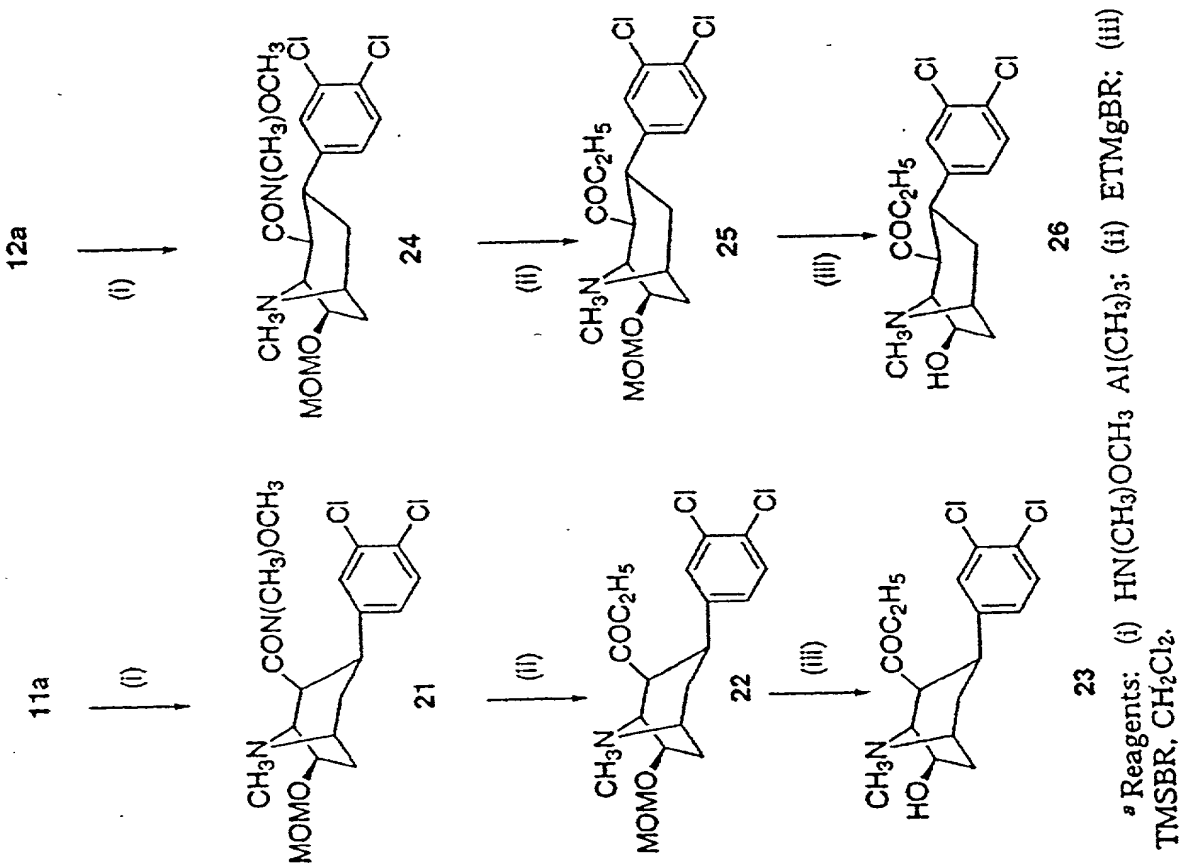


Figure 6

Scheme 4. Resolution of 8A, 15A, and 18A^a

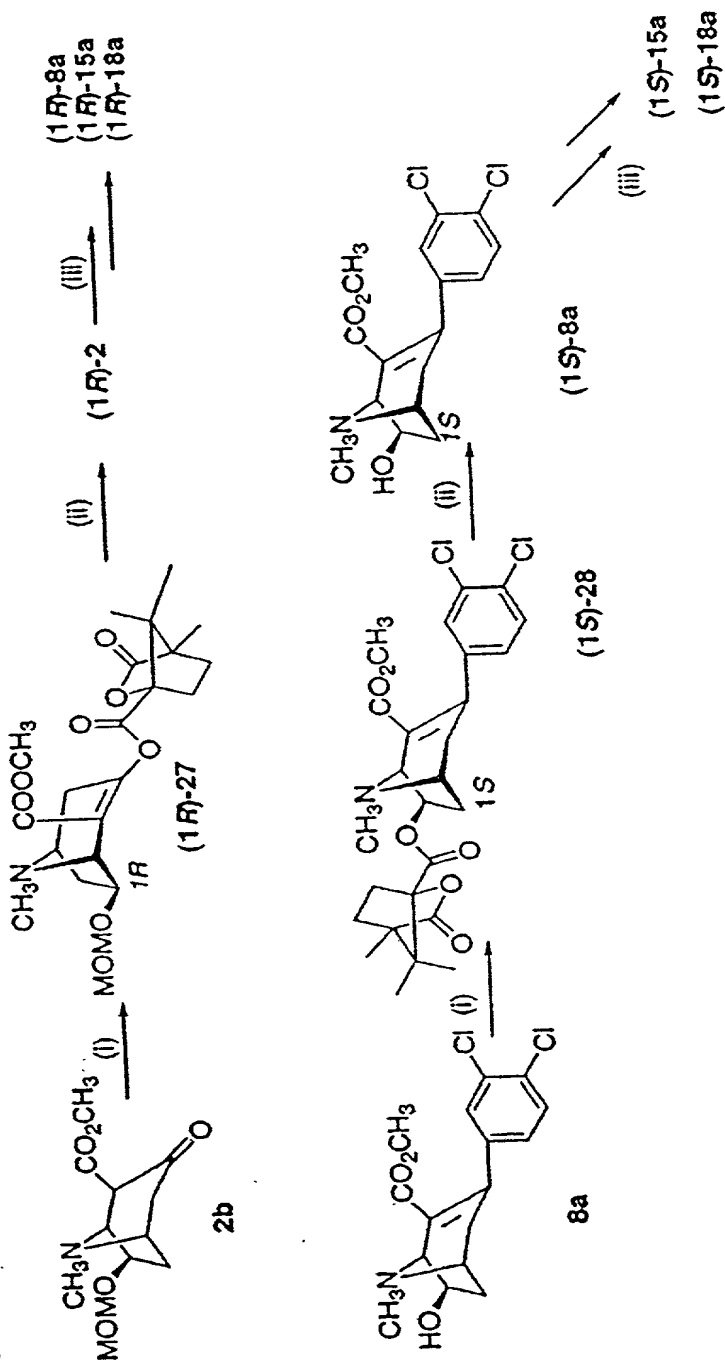
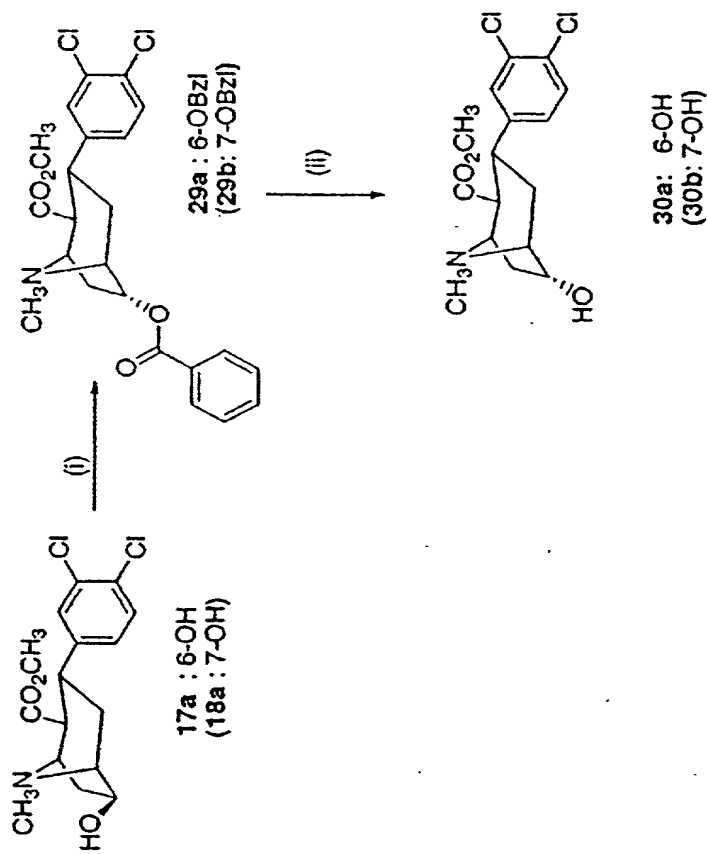


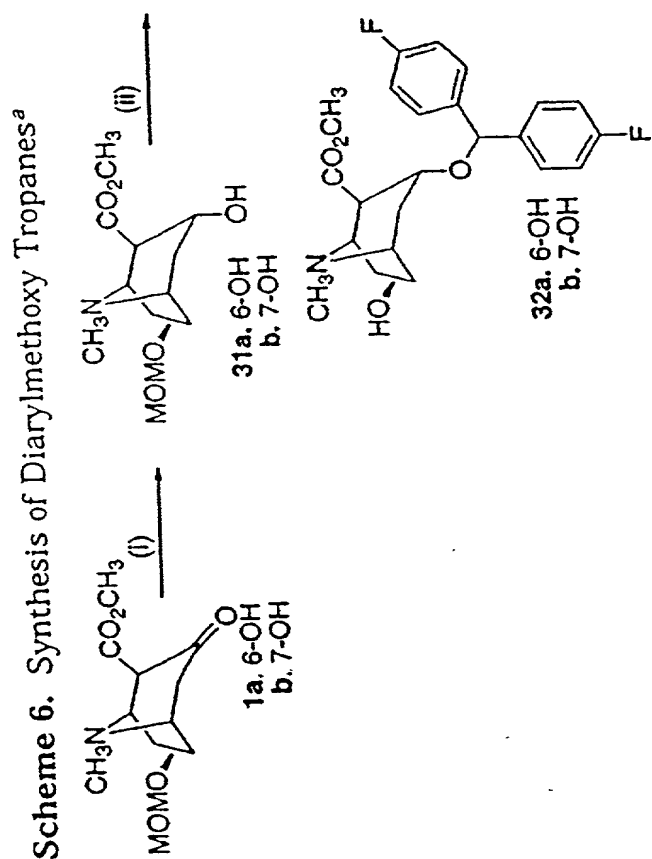
Figure 7

Scheme 5. Inversion at C6 and C7^a



^a Reagents: (i) C₆H₅COOH, Ph₃P, DEAD; (ii) LiOH, THF.

Figure 8



^a Reagents: (i) NaBH₄; (ii) 4,4'-difluorobenzhydrol, pTSA.